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## PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference E1N001412WO1	<b>FOR FURTHER ACTION</b>		See Form PCT/IPEA/416
International application No. PCT/IT 02/00798	International filing date (day/month/year) 17.12.2002	Priority date (day/month/year) 17.12.2002	
International Patent Classification (IPC) or national classification and IPC F15B11/05			
Applicant NEM S.R.L. et al.			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <ul style="list-style-type: none"> <li>a. <input type="checkbox"/> sent to the applicant and to the International Bureau) a total of sheets, as follows:           <ul style="list-style-type: none"> <li><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</li> <li><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</li> </ul> </li> <li>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</li> </ul>			
<p>4. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Box No. I Basis of the opinion</li> <li><input type="checkbox"/> Box No. II Priority</li> <li><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li><input type="checkbox"/> Box No. IV Lack of unity of invention</li> <li><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li><input type="checkbox"/> Box No. VI Certain documents cited</li> <li><input type="checkbox"/> Box No. VII Certain defects in the international application</li> <li><input type="checkbox"/> Box No. VIII Certain observations on the international application</li> </ul>			
Date of submission of the demand 25.07.2003	Date of completion of this report 14.01.2005		
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Bustos, M Telephone No. +49 89 2399-6936		



**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/T 02/00798

**Box No. I Basis of the report**

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
  - This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
    - international search (under Rules 12.3 and 23.1(b))
    - publication of the international application (under Rule 12.4)
    - international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

**Description, Pages**

1-10 as originally filed

**Claims, Numbers**

1-14 received on 24.12.2004 with letter of 22.12.2004

**Drawings, Sheets**

1/2-2/2 as originally filed

a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3.  The amendments have resulted in the cancellation of:
  - the description, pages
  - the claims, Nos.
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):
4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
  - the description, pages
  - the claims, Nos.
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/IT 02/00798

**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes:	Claims	1-14
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-14
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-14
	No:	Claims	

2. Citations and explanations (Rule 70.7):

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
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International application No.  
**PCT/IT 02/00798**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Reference is made to the following document:

D1: US-A-4 981 281 (BRUNDAGE ROBERT W ET AL) 1 January 1991 (1991-01-01)

**I INDEPENDENT CLAIM**

1.1. The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and shows (the references in parentheses applying to this document):

A controlled-flow hydraulic distributor, comprising: a cylindrical internally hollow body (PH), exhibiting an inlet chamber (200) for a fluid and an outlet chamber (212); a cursor (PE) associated to the hollow body (PH) and mobile therein between a non operative position in which the cursor (PE) interrupts passage of the fluid from the inlet chamber (200) to the outlet chamber (212) and at least an operative position in which the cursor (PE) allows passage of fluid; a linear actuator (S), operatively associated to the cursor (PE), for moving the cursor (PE) in a direction between the operative position and the non operative position; elastic means (284) associated to the cursor (PE); and further comprising a closing element (ME) associated to other elastic means (298) and mobile in the inlet chamber (200) between a first position in which it closes off the inlet chamber (200) and a second position in which it permits passage of fluid from the inlet chamber (200) to a second opening (MP).

1.2. The subject-matter of claim 1 differs from this known distributor in that (i) the elastic means associated to the cursor are the same elastic means operating on the closing element, and that (ii) the inlet chamber comprises the second opening, which is connected directly or indirectly to a second inlet chamber, and an antechamber into which fluid is supplied via an external organ; the closing element being interposed between the antechamber and the second opening.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

1.3. The problem to be solved by the present invention may be regarded as easily constituting a functional link between the cursor and the closing element, and lowering the

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turbulence at the entrance of the inlet chamber and rendering the flow less sensitive to fluid contaminant by means of a connection channel between first and second inlet chamber.

1.4. As none of the prior art documents discloses such a lay-out for a hydraulic distributor and these features are also not suggested by any prior art document, the subject-matter of claim 1 meets the requirements of Article 33(2) and 33(3) PCT.

**II DEPENDENT CLAIMS**

2. Claims 2 to 14 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

**III INDUSTRIAL APPLICABILITY**

3. The subject-matter of claims 1-14 can be manufactured in industry, and thus looked upon as being industrially applicable.

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## REPLACEMENT SHEET

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Claims.

- 1). A controlled-flow hydraulic distributor, comprising:  
a cylindrical internally hollow body (2), exhibiting an inlet chamber (3) for a fluid and an outlet chamber (4);  
a cursor (7) associated to the hollow body (2) and mobile therein between a non-operative position in which the cursor (7) interrupts passage of the fluid from the inlet chamber (3) to the outlet chamber (4) and at least an operative position in which the cursor (7) allows passage of the fluid;  
a linear actuator (8), operatively associated to the cursor (7), for moving the cursor (7) in a direction (A) between the operative position and the non-operative position;  
elastic means (11) associated to the cursor (7);  
and a closing element (12) mobile in the inlet chamber (3);  
characterised in that the closing element (12) is associated to the elastic means (11) and is mobile between a first position in which it closes off the inlet chamber (3) and a second position in which it permits passage of fluid from the inlet chamber (3) to a second opening (3b); the inlet chamber (3) comprising the second opening (3b), which is connected directly or indirectly to a second inlet chamber (20), and an antechamber (3a) into which fluid is supplied via an external organ; the closing element (12) being interpositioned between the antechamber (3a) and the second opening (3b).
- 2). The distributor of claim 1, wherein the closing element (12) comprises a first wall (13) associated to the elastic means (11) and facing the second opening (3b) and a second wall (14) opposite the first wall (13), which faces the antechamber (3a).

## REPLACEMENT SHEET

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- 3). The distributor of claim 2, wherein the closing element (12) comprises a lateral wall (15) associated to the first wall (13) and the second wall (14), which lateral wall (15) is in contact with an internal surface of the hollow body (2), which internal surface defines the inlet chamber (3); the lateral wall (15) affording at least a passage (16).
- 4). The distributor of claim 3; wherein the passage (16) exhibits a longitudinal development which is predominantly parallel to a movement direction (A) of the cursor (7).
- 5). The distributor of any one of the preceding claims, wherein the closing element (12) exhibits a cylindrical development.
- 6). The distributor of any one of claims from 3 to 5, wherein the passage (16) comprises an incision (16a) having a decreasing breadth as it progresses towards the first wall (13).
- 7). The distributor of claim 3; wherein the passage (16) is constituted by at least one hole.
- 8). The distributor of any one of the preceding claims, wherein the cursor (7) comprises a shaft (7a) having a longitudinal development which is parallel to direction (A) and which exhibits a first end (7b) which is operatively engaged with the elastic means (11) and a second end (7c) which is associated to the linear actuator (8).
- 9). The distributor of claim 8, wherein the elastic means (11) comprise a helix spring (11a) exhibiting two ends (11b), an end of which two ends (11b) is associated to the first wall (13) and another end of which two ends (11b) is associated to the shaft (7a); the spring (11a) being compressed by effect of a movement into the operative position of the cursor (7) and by effect of a movement of the closing element (12).

## REPLACEMENT SHEET

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- 10). The distributor of claim 9, wherein the shaft (7a) exhibits at least one annular groove (9) made in an external surface of the shaft (7a) and arranged between the first end (7b) and the second end (7c) thereof; the groove (9) defining, in collaboration with the internal surface (9a) of the hollow body (2), an annular chamber (10).
- 11). The distributor of claim 10, wherein the annular chamber (10) is in communication with the second inlet chamber (20).
- 12). The distributor of claim 11, wherein the annular chamber (10) is in communication with the outlet chamber (4) when the cursor (7) is arranged in the operative position.
- 13). The distributor of any one of the preceding claims, wherein the linear actuator (8) comprises an electromagnet.
- 14). The distributor of any one of the preceding claims from 1 to 12, wherein the linear actuator (8) comprises a hydraulic piston.